Bacteriological Results of Monitoring Program of Oyster Shellstock Harvesting Areas Maritimes Region — 1979

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Fisheries and Marine Service

Data Report

March 1980

Bacteriological Results of Monitoring Program of Oyster Shellstock Harvesting Areas Maritimes Region 1979

by

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Department of Fisheries & Oceans

Maritimes Region

BACTERIOLOGICAL RESULTS OF MONITORING PROGRAMS OF OYSTER SHELLSTOCK HARVESTING AREAS MARITIMES REGION - 1979

Commencing in 1967, the Inspection Division of Fisheries and Oceans has carried out an Annual Bacteriological Monitoring Program of oyster shellstock growing areas of commercial harvesting significance from all areas in the Maritimes.

Each year, prior to the opening of the harvesting season, samples are taken from all potential harvesting areas and areas yielding results in excess of 2400 MPN Coliforms and/or 100 MPN Faecal Coliforms are re-sampled and probable sources of pollution investigated. The pre-season sampling is further supplemented by bacteriological weekly analyses taken from oyster shellstock and shipping stock during the harvesting and shipping season.

Whenever results are consistently above 2400 MPN Coliforms or 100 MPN Faecal Coliforms, the Inspection Division carries out a bacteriological survey of overlay waters and may recommend to the Environmental Protection Services that a thorough seawater survey of a particular growing area be carried out to determine if closure of the area would be warranted.

Results 1979 - 92% compliance for total Coliforms and 60% compliance for Faecal Coliforms, being results found for pre-season samples. 98% compliance for total Coliforms and 94% compliance for Faecal Coliforms were found in Harvesting - Shipping oyster samples. No oyster growing areas were recommended for closure based on findings.

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Department of Fisheries and Oceans
Maritimes Region

RÉSULTATS BACTÉRIOLOGIQUES DES PROGRAMMES DE CONTRÔLE DES ZONES DE CULTURE DES HUÎTRES RÉGION DES MARITIMES - 1979

SOMMAIRE

Depuis 1967, la Division de l'inspection du ministère des Pêches et des Océans met chaque année en vigueur, dans toutes les régions des Maritimes, un programme de contrôle bactériologique des zones de culture des huîtres qui ont une importance commerciale.

Chaque année, avant l'ouverture de la saison de récolte, on prélève des échantillons dans toutes les zones qui offrent des possibilités de récolte; dans les zones où l'on constate que le nombre le plus probable de bactéries coliformes est supérieur à 2 400 et/ou que le nombre le plus probable de bactéries coliformes fécales est supérieur à 100, on prélève de nouveaux échantillons et on cherche à trouver quelles sont les sources de pollution probables. Cet échantillonnage est suivi, pendant la saison de récolte et d'expédition, d'analyses bactériologiques effectuées chaque semaine sur les stocks de culture et sur les stocks d'expédition.

Dès que le nombre le plus probable de bactéries coliformes est constamment supérieur à 2 400 ou que le nombre le plus probable de bactéries coliformes fécales est constamment supérieur à 100, la Division de l'inspection effectue une étude bactériologique des eaux polluées et il est possible qu'elle recommande au Service de la protection de l'environnement qu'on effectue une étude approfondie de l'eau de mer dans une zone de culture particulière afin de déterminer si la récolte devrait être interdite dans cette zone.

En 1979, les résultats ont été les suivants dans le cas des échantillons prélevés avant l'ouverture de la saison : 92 % des zones répondaient aux normes en ce qui a trait au nombre total de bactéries coliformes et 60 % d'entre elles répondaient aux normes en ce qui a trait au nombre de bactéries coliformes fécales. Pour ce qui est des échantillons prélevés au cours de la saison de récolte et d'expédition, on a constaté que 98 % des zones répondaient aux normes en ce qui a trait au nombre total de bactéries coliformes et que 94 % d'entre elles répondaient aux normes en ce qui a trait au nombre de bactéries coliformes fécales. En se fondant sur les résultats obtenus, on n'a pas recommandé que la récolte soit interdite dans quelque zone que ce soit.

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Division de l'inspection
Ministère des Pêches & des Océans
Région des Maritimes

BACTERIOLOGICAL RESULTS OF MONITORING PROGRAMS

OF OYSTER SHELLSTOCK HARVESTING AREAS

MARITIMES REGION - 1979

Since August 1967, the Inspection Branch has carried out an annual sampling program to monitor the bacteriological quality of oyster shellstock being commercially harvested from various areas in the Maritime Provinces.

Each year, prior to the opening of the oyster harvesting season, samples of oysters are taken from all harvesting areas and are bacteriologically tested to determine their quality and thereby monitor any significant change in the quality of overlay waters. The purpose of this program is to identify any changes in the level of contamination in the harvesting areas and, where necessary, carry out further bacteriological investigations. The pre-season sampling is further supplemented by bacteriological analyses of samples taken from commercial shipments of oyster shellstock during the oyster harvesting and shipping season.

Prior to the oyster harvesting season, samples of oyster shellstock (approximately 12 oysters per sample) are taken from each harvesting area in the Maritimes Region and analyzed for the most probable number (MPN) Coliform and Faecal bacteria per 100 grams (Standard Methods - Water and Waste, 13th Ed.).

During the oyster harvesting season, weekly samples of oyster shellstock (approximately 12 oysters per sample) are taken from each shipper's oyster grading sheds, where inspections for quality, labelling etc., are carried out prior to shipment of any lots of oysters. These samples are also analyzed for MPN Coliform and Faecal Coliform bacteria.

Areas yielding oysters having bacteriological results in excess of 2400 MPN Coliforms and/or 100 MPN Faecal Coliforms are resampled.

Where results are consistently above these levels, the Inspection Branch carries out a bacteriological survey of the sea water in the particular harvesting area to obtain more information concerning the quality of the overlay water, and to determine if any significant deterioration has occurred since the previous season. From the results of these surveys, the Inspection Branch may recommend to the Environmental Protection Services that a thorough bacteriological survey of the harvesting area be carried out to determine if closure of the area should be recommended.

Table I lists the oyster producing areas of the Maritime Provinces.

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Tables II and III outline the percent compliance of bacteriological results with various MPN Coliform and Faecal Coliform levels during the pre-season and harvesting-shipping season monitoring programs respectively.

Tables IV and V illustrate the compliance of the various areas with levels of quality during the pre-season and harvesting-shipping season monitoring programs respectively.

Table VI demonstrates the environmental conditions at the time of sampling and the action taken in respect to those samples collected during the pre-season monitoring program which yielded excessive bacteriological results.

Environmental conditions at time of sampling were not available for samples submitted as part of the harvest-shipping season monitoring program, since these samples were taken from the shippers' oyster grading sheds and not directly from the individual harvesting areas.

Ninety-two (92) percent of the pre-season samples and ninety-eight (98) percent of the harvesting-shipping season samples yielded MPN Coliform results of less than 2400 per 100 grams (Tables II and III). Results greater than 2400 MPN Coliforms per 100 grams were found in oyster from four (4) of the twenty-four (24) areas of Prince Edward Island, two (2) of the twenty-one (21) areas of Nova Scotia, and none (0) of the sixteen (16) areas of New Brunswick (Tables IV and V).

Sixty (60) percent of the pre-season samples and ninety-four (94) percent of the harvesting-shipping season samples yielded MPN Faecal Coliform results of less than 100 per 100 grams. Seventy-nine (79) percent of the pre-season samples and ninety-eight (98) percent of the harvesting-shipping season samples yielded MPN Faecal Coliform results of less than 250 per 100 grams (Tables II and III). Results greater than 250 MPN Faecal Coliforms per 100 grams were found in oyster samples from thirteen (13) of the twenty-four (24) areas of Prince Edward Island. Two (2) of the twenty-one (21) areas of Nova Scotia, and two (2) of the sixteen (16) areas of New Brunswick (Tables IV and V).

TABLE I

OYSTER PRODUCING AREAS

MARITIME PROVINCES

1979

PRINCE EDWARD ISLAND

(OYSTER HARVESTING TRACTS)

TRACT NO.	LOCATION	TRACT NO.	LOCATION
1-G	Dock River	2-L	Darnley Basin
1-I	Mill River	3-B	French River
1-K	Foxley River	3-D	Stanley River
1-M	Trout River	3-K	Covehead Bay
1-O	Black Bank	6-C	Pinette River
1-Q	Conway Narrows	7-C	Vernon River
1-R	Conway River (Poplar Grove)	7-D	Pownal Bay
2-B	Lennox Island Channel	7-F	East (Hillsborough R.)
2-D	Trout River 2	7-H	West River
2-F	Lennox Island	9-B	Salutation Cove
2-H	Grand River	9-G	Percival River
2-I	Bentick Cove	9-H	Wolfe Inlet

NEW BRUNSWICK

AREA NO.	LOCATION	AREA NO.	LOCATION
41.	Shediac	52.	Nequac
42.	Shediac R. & Gr. Dique	53.	Upper St. Simon
45.	Buctouche Bay	54.	Caraquet
47.	Little Buctouche River	55.	Black River
49.	Bay du Vin River	56.	Shippegan Harbour
50.	Bay du Vin, Egg Island & Fox Island Areas	57.	Village Bay
51.	Hardwicke	59.	Botsford

NOVA SCOTIA

AREA NO.	LOCATION	AREA NO.	LOCATION
72.	McKinnon Harbour, East Bay, Eskasoni, Evans Island	74.	Tracadie Harbour
		75.	Pictou Co. public beds
		76.	Caribou River
73.	River Denys, Whycocomagh Bay, Indian River, Little Narrows, Nyanza Bay, Washabuck River, Lewis Cove, Livingstone's Cove, Orangedale, Patricks Channel	77.	Malagash Basin
		78.	Wallace Basin
		80.	Pugwash River

TABLE II

SUMMARY OF BACTERIOLOGICAL RESULTS OF OYSTER SHELLSTOCK

PRE-SEASON MONITORING PROGRAM - 1979

PROVINCE	NO. OF SAMPLES	MPN COLIFORM RANGE PER 100 GM.					MPN FAECAL COLIFORM RANGE PER 100 GM.			
		<20	<100	<250	<2400	>2400	<20	<100	<250	>250
Prince Edward Island	44	5	16	31	40	4	9	21	31	13
Nova Scotia	11	0	3	8	9	2	2	7	9	2
New Brunswick	20	6	13	18	20	0	11	17	19	1
TOTAL	75	11	32	57	69	6	22	45	59	16
PERCENT	100	15	43	76	92	8	29	60	79	21

TABLE III

SUMMARY OF BACTERIOLOGICAL RESULTS OF OYSTER SHELLSTOCK

HARVESTING-SHIPPING SEASON MONITORING PROGRAM - 1979

PERCENT COMPLIANCE

PROVINCE	NO. OF SAMPLES	MPN COLIFORM RANGE PER 100 GM.					MPN FAECAL COLIFORM RANGE PER 100 GM.			
		<20	<100	<250	<2400	>2400	<20	<100	<250	>250
Prince Edward Island	70	20	48	63	68	2	30	60	66	4
Nova Scotia	20	--	--	--	--	--	8	17	20	--
New Brunswick	174	142	155	169	171	3	161	171	174	--
TOTAL	264	162	203	232	239	5	199	248	260	4
PERCENT	100	66	83	95	98	2	75	94	98	2

TABLE IV

SUMMARY OF BACTERIOLOGICAL RESULTS OF OYSTER SHELLSTOCK

PRE-SEASON MONITORING REPORT

1979

PROVINCE	AREA NOS.	AREAS WHERE MPN COLIFORM RANGES PER 100 GM. WERE				AREAS WHERE MPN FAECAL COLIFORM RANGES PER 100 GM. WERE		
		>20→<100	>100→<250	>250→<2400	>2400	>20→<100	>100→<250	>250
Prince Edward Island	1-9	1-I,1-M, 1-P,1-R, 2-D,2-H, 2-I,3-A, 3-K,7-F, 9-E,9-A	1-G,1-P, 2-H,3-A, 6-B,7-A, 7-E,9-B, 9-E	1-K,1-M, 1-P,1-Q, 1-R,2-D, 2-L,3-A, 3-K,7-A, 7-F	1-Q, 2-H, 2-I, 2-L	1-I,1-M, 1-P,1-R, 2-D,2-A, 2-I,2-L, 3-A,3-K, 6-B,7-A, 7-F,9-B, 9-E,9-A	1-G,1-M, 1-P,2-D, 2-H,2-I, 3-A,7-A, 7-E,9-E	1-K,1-D 1-Q,1-R, 2-H,2-L, 3-K,7-A, 7-F
Nova Scotia	75-78 & 80	76,78	75,77, 80,78	78	78, 80	75,76,77, 78,80	---	78,80
New Brunswick	52-56	54 (A), 56,49, 45,51, 57	54 (A) 41,59, 47,55, 49	50,45		54 (A), 56, 59,47, 45,55	54 (A), 49	45

TABLE V

SUMMARY OF BACTERIOLOGICAL RESULTS OF OYSTER SHELLSTOCK

HARVESTING-SHIPPING SEASON MONITORING PROGRAM

1979

PROVINCE	AREA NOS.	AREAS WHERE MPN COLIFORM RANGES PER 100 GM. WERE				AREAS WHERE MPN FAECAL COLIFORM RANGES PER 100 GM. WERE		
		>20→<100	>100→<250	>250→<2400	>2400	>20→<100	>100→<250	>250
Prince Edward Island	1-9	2-B,1-Q, 7-F,1-A, 1-M,2-B, 3-D,1-R, 9-G,2-F, 4-B,3-M, 1-K,7-H, 2-F,7-F, 3-C,2-G, 3-K,3-D, 1-N,9-F, 1-L	9-G,1-Q, 3-F,1-G, 7-H,1-L, 7-F,1-R, 1-M	3-D,9-G, 4-B,7-H, 2-F,3-C	1-R, 1-L	3-D,2-B, 1-Q,7-F, 1-A,1-M, 2-B,3-D, 1-R,9-G, 3-F,1-G, 2-F,7-H, 4-B,3-M, 1-L,2-F, 1-K,3-C, 7-F,2-G, 3-K,1-N, 9-F	9-G,1-Q, 4-B,7-H, 7-F,1-R	9-G,1-R, 1-L,3-C
Nova Scotia	72,73	--	--	--	--	72,73	72,73	--
New Brunswick	*	52,54 (A)	54 (A), 45	52,54 (A)	54 (A)	52,54(A), 45	52	54 (A)
* 42,41,59,49,47,45,50,51,55,57								

TABLE VI

ENVIRONMENTAL CONDITIONS AT TIME OF SAMPLING (AREAS RESAMPLED ONLY)

OYSTER SHELLSTOCK MONITORING PROGRAM - PRE-SEASON SURVEY - 1979

BACTERIOLOGICAL RESULTS

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
Prince Edward Island	1-A	22 Aug.	1,100	1,100	Air temp. 14C, showers; wooded area; previous weather clear.	Request resample
						OK
	1-Q	08 Aug.	>11,000	2,400	Sunny and warm; tide falling; marshland in area; rain showers previous day to sampling.	Request resample
		05 Sept.	50	<20	Clear; low tide.	OK
	1-L	21 Aug.	330	330	Clear; water 64 F; air 60 F; farmland herd of cattle in area; tide rising; previous weather showers.	Request resample

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TABLE VI

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
Prince Edward Island	1-L	24 Oct.	50	20	Overcast; light s.w.winds; air 60 F; water 68 F; tide falling; woodland and farmland.	OK
	3-B	20 Aug.	330	230	Overcast; air 65 F; water 62 F; low tide; farmland; previous weather showers and cool temperatures.	Request resample
	3-B	18 Sept.	170	170	Clear; s.w.winds; air 68 F; water 64 F; tide low; no rain since 14 Sept.	Resample
	3-B	22 Oct.	20	20	Clear; n.winds; air 66 F; water 56 F; tide low.	OK
	2-H	16 Aug.	16,000	1,400	Overcast; wooded area and one cottage near sampling site.	Request resample

TABLE VI

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
Prince Edward Island	2-H	01 Oct.	<20	<20	Clear; wooded area; one cottage near sampling site.	OK
	7-F	15 Aug.	700	400	Clear; s.w. winds; air 64 F; water 64 F; cultivated fields and woodland; heavy rain two days prior.	Request resample
	7-F	15 Aug.	230	230	Clear; s.w. wind; air 70F; water 64 F; marsh and wooded areas; heavy rain two days prior.	Request resample
	7-F	13 Sept.	70	50	Clear; n.w. winds; air 57 F; tide low; water 62 F; previous weather n.w. winds and rain.	OK
	7-F	14 Sept.	80	80	Clear; n.w. winds; air 66 F; water 64 F; tide falling; previous weather rain and n.w. winds.	OK

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TABLE VI

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
Prince Edward Island	7-H	15 Aug.	490	490	S.w. winds; clear; air 64 F; water 66 F; tide rising; farmlands; heavy rain - Aug.11th and 12th.	Request resample
	7-H	13 Sept.	<20	<20	Clear; n.w. winds; air 58 F; water 64 F; previous weather - strong n.w. winds.	OK
	1-R	15 Aug.	790	490	Clear; air 20 C; tide rising; 100 yds. from small wharf; heavy rain Aug.13.	Request resample
	1-R	22 Aug.	20	<20	Showers; air 14 C; tide falling; wooded area.	OK
	2-D	15 Aug.	2,200	170	Air 18 C; clear; farmland in area; heavy rain on Aug.13; tide rising.	Request resample
	2-D	21 Aug.	20	<20	Clear; air temp. 12 C; low tide; farmland.	OK

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TABLE VI

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
Prince Edward Island	2-L	15 Aug.	3,500	490	Overcast; inshore boats - traffic; woodland; last 4 days - heavy rain.	Request resample
	2-L	21 Aug.	140	60	Overcast - cool.	OK
	1-P	15 Aug.	230	230	Clear; air 20 C; tide rising; wooded area; heavy rain Aug.13.	Request resample
	1-P	15 Aug.	460	310	Clear; air 20 C; tide rising; wooded area; heavy rain Aug.13.	Request resample
	1-P	21 Aug.	20	20	Clear; air 12 C; tide rising; wooded area.	OK
	1-P	21 Aug.	80	20	Clear; air 13 C; tide high; farmland.	OK

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TABLE VI

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
Prince Edward Island	7-C	06 Aug.	230	230	Sunny and warm (74 F); water temp. 82 F; tide falling; cultivated farmland and livestock.	Request resample
	7-C	25 Sept.	230	80	Clear; w. wind; air 56 F; Water 54 F; tide rising.	OK
	3-K	17 Sept.	330	330	Clear; n.w. winds; air 66 F; water 66 F; tide rising; farmland; 14 Sept. heavy wind and rain.	Resample
	1-G	21 Aug.	130	230	Overcast; air 61 F; water 63 F; tide rising; farmland; previous weather - showers.	Request resample
	1-M	20 Aug.	490	130	Cloudy; winds e; air 64 F; water 69 F; tide falling; farm and marshland; previous weather - showers.	Request resample

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TABLE VI

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
Prince Edward Island	2-I	31 July	16,000	170	Sunny and warm; s.w. winds; (light) heavy rain 3 previous days.	Request resample
	2-I	17 Aug.	50	<20	Clear; Traffic - small pleasure boats; farmland; previous weather light showers.	OK
	1-C	06 Aug.	>90	270	Sunny and warm - 74 F; light northerly winds; water temp. 80 F; tide falling; cattle on bordering marsh.	Request resample
	2-G	15 Aug.	170	170	Clear; air 18 C; wooded and swampy area; high winds on Aug.14; heavy rain on Aug.13.	
	2-H	31 July	>16,000	>16,000	3 cottages about .5 miles; sunny and hot; light s.w. winds.	Request resample

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TABLE VI

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
New Brunswick	45	15 Aug.	790	790	Sunny and cool; water 65 F; heavy rain on 13 Aug.	Resample
	45	24 Aug.	45	20	Sunny and warm; water 65 F.	OK
	49	20 Aug.	230	130	Sunny and warm; water 64 F.	Resample
	49	27 Aug.	92	<18	Fog and warm; water 65 F.	OK
Nova Scotia	78	03 Oct.	3,500	2,200	Overcast with showers; tide low - rising; heavy rain previous night; boat traffic (duck season)	Resample

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TABLE VI

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
Nova Scotia	78	18 Oct.	50	<20	Light showers; high falling tide; sunny previous three days; boat traffic heavy.	OK but resample
	78	01 Nov.	110	<20	Sunny; low rising tide; rain previous day; boat traffic light.	OK
	80	03 Oct.	>24,000	>24,000	Low tide; sunny; heavy rain previous two days; boat traffic light.	Resample
	80	18 Oct.	110	50	Light showers; tide high - falling; sunny previous two days; boat traffic light.	OK but resample
	80	01 Nov.	210	<20	Sunny; showers previous day; tide low and falling; boat traffic light.	OK